

**What is claimed is:**

1           1. A detectable flat panel display, comprising:  
2           a substrate including a circuit region and a display  
3           region;  
4           a circuit device disposed on the circuit region of  
5           the substrate;  
6           a display device disposed in the display region of  
7           the substrate; and  
8           a metal pattern formed in the circuit region, capable  
9           of reflecting light such that the reflected  
10          light is detectable by recognition equipment.

1           2. The detectable flat panel display as claimed in  
2           claim 1, wherein the circuit device is a thin film  
3           transistor.

1           3. The detectable flat panel display as claimed in  
2           claim 2, wherein the display device is an organic  
3           light-emitting diode.

1           4. The detectable flat panel display as claimed in  
2           claim 3, comprising:  
3           a substrate including a thin film transistor (TFT)  
4           region and an organic light-emitting diode  
5           (OLED) region;  
6           a thin film transistor disposed in the TFT region of  
7           the substrate, wherein the thin film transistor  
8           has a metal electrode as the metal pattern;  
9           a planarizing insulating layer covering the thin  
10          film transistor, wherein the planarizing

11           insulating layer has a contact window to expose  
12           the metal pattern;  
13       a transparent anode disposed in the OLED region of  
14           the substrate and electrically connected to the  
15           metal pattern;  
16       a transparent insulating cover layer covering a  
17           portion of the anode in a contact window  
18           position;  
19       an organic light-emitting layer disposed on the  
20           anode and the insulating cover layer; and  
21       a transparent cathode disposed on the organic  
22           light-emitting layer.

1           5. The detectable flat panel display as claimed in  
2       claim 4, wherein the metal pattern is a source electrode  
3       or a drain electrode.

1           6. The detectable flat panel display as claimed in  
2       claim 4, wherein the metal pattern is a gate.

1           7. The detectable flat panel display as claimed in  
2       claim 4, wherein the planarizing insulating layer is a  
3       photoresist material or a dielectric material.

1           8. The detectable flat panel display as claimed in  
2       claim 7, wherein the planarizing insulating layer is  
3       formed by spin coating.

1           9. The detectable flat panel display as claimed in  
2       claim 1, wherein any layer above the metal pattern is  
3       transparent.

1           10. The detectable flat panel display as claimed in  
2           claim 1, wherein the metal pattern is the outermost layer.

1           11. A detectable flat panel display, comprising:  
2           a substrate including a circuit region and a display  
3           region;  
4           a circuit device disposed in the circuit region of  
5           the substrate;  
6           a display device disposed in the display region of  
7           the substrate; and  
8           a metal pattern formed in the display region, capable  
9           of reflecting light such that the reflected  
10          light is detectable by recognition equipment.

1           12. The detectable flat panel display as claimed in  
2           claim 11, wherein the display device is an organic  
3           light-emitting diode.

1           13. The detectable flat panel display as claimed in  
2           claim 12, wherein the organic light-emitting diode  
3           includes:  
4           an anode;  
5           an organic light-emitting layer disposed on the  
6           anode;  
7           a transparent cathode disposed on the light-emitting  
8           layer,  
9           wherein at least one of the organic light-emitting  
10          layer and the transparent cathode has an  
11          opening, and the metal pattern is disposed in  
12          the opening.

13           14. The detectable flat panel display as claimed in  
14 claim 13, comprising:

15           a substrate including a thin film transistor (TFT)  
16           region and an organic light-emitting diode  
17           (OLED) region;

18           a thin film transistor disposed in the TFT region of  
19           the substrate, wherein the thin film transistor  
20           has a gate, a source electrode, and a drain  
21           electrode;

22           a planarizing insulating layer covering the thin  
23           film transistor, wherein the planarizing  
24           insulating layer has a contact window to expose  
25           the gate, the source electrode, and the drain  
26           electrode;

27           an anode disposed in the OLED region of the substrate  
28           and electrically connected to the gate, the  
29           source electrode, and the drain electrode;

30           an insulating cover layer covering a portion of the  
31           anode in a contact window position;

32           an organic light-emitting layer disposed on the  
33           anode and the insulating cover layer; and

34           a transparent cathode disposed on the organic  
35           light-emitting layer.

1           15. The detectable flat panel display as claimed in  
2 claim 11, wherein any layer above the metal pattern is  
3 transparent.

1           16. The detectable flat panel display as claimed in  
2 claim 11, wherein the metal pattern is the outermost  
3 layer.

1           17. A detectable organic light-emitting diode  
2 display, comprising:  
3           a substrate including a thin film transistor (TFT)  
4           region and an organic light-emitting diode  
5           (OLED) region;  
6           a thin film transistor disposed in the TFT region of  
7           the substrate, wherein the thin film transistor  
8           has a first metal pattern capable of reflecting  
9           light such that the reflected light is  
10          detectable by recognition equipment;  
11          a planarizing insulating layer covering the thin  
12          film transistor, wherein the planarizing  
13          insulating layer has a contact window to expose  
14          the first metal pattern;  
15          a transparent anode disposed in the OLED region of  
16          the substrate and electrically connected to the  
17          first metal pattern;  
18          a transparent insulating cover layer covering a  
19          portion of the anode in a contact window  
20          position;  
21          an organic light-emitting layer disposed on the  
22          anode and the insulating cover layer; and  
23          a transparent cathode disposed on the organic  
24          light-emitting layer.

1           18. A detectable organic light-emitting diode  
2 display, comprising:  
3           a substrate including a thin film transistor (TFT)  
4           region and an organic light-emitting diode  
5           (OLED) region;

6           a thin film transistor disposed in the TFT region of  
7           the substrate;  
8           an anode disposed in the OLED region of the  
9           substrate;  
10          an organic light-emitting diode disposed on the  
11          anode; and  
12          a transparent cathode disposed on the organic  
13          light-emitting layer,  
14          wherein at least one of the organic light-emitting  
15          layer and the transparent cathode has an  
16          opening, and a second metal pattern is disposed  
17          in the opening, capable of reflecting light  
18          such that the reflected light is detectable by  
19          recognition equipment.

1           19. A recognition system, comprising:  
2           a detectable flat panel display; and  
3           recognition equipment,  
4           wherein the detectable flat panel display includes:  
5           a substrate including a circuit region and a  
6           display region;  
7           a circuit device disposed in the circuit region  
8           of the substrate; and  
9           a display device disposed in the display region  
10          of the substrate,  
11          wherein the detectable flat panel display meets at  
12          least one of the following requirements:  
13          a first metal pattern is disposed in the circuit  
14          region, wherein any layer above the first  
15          metal pattern is transparent or the first

16 metal pattern is the outermost layer, such  
17 that the first metal pattern is detectable  
18 by the recognition equipment; or  
19 a second metal pattern is disposed in the  
20 display region, wherein any layer above  
21 the second metal pattern is transparent or  
22 the second metal pattern is the outermost  
23 layer, such that the second metal pattern  
24 is detectable by the recognition  
25 equipment.

1 20. The recognition system as claimed in claim 19,  
2 wherein the recognition equipment includes a light  
3 source, a receiver, and a signal feedback device, wherein  
4 when light from the light source irradiates the flat panel  
5 display, the light is reflected by the first and/or second  
6 metal pattern, the receiver receives a signal of the  
7 reflected light and transmits the signal to the signal  
8 feedback device, and the signal feedback device transmits  
9 the signal back to the flat panel display.